

Class 2 Handout

I. **Exercises:** Are the following arguments valid? If so, are they sound?

1. If it snows more than two feet, there will be no classes at Hamilton. It snowed more than two feet last Monday. Therefore, there were no classes at Hamilton.
2. The Mets are a professional baseball team. Professional baseball teams are sports businesses. So, the Mets are a sports business.
3. If police departments improve their effectiveness, crime rates go down. Crime rates have gone down. So, police departments have improved their effectiveness.
4. Since the sun is pink, and made of cheese, it follows that some cheese is pink.
5. Some cars are green. Some cars are Toyotas. So, some cars are green Toyotas.
6. All great singers have strong voices. Celine Dion does not have a strong voice. So Celine Dion is not a great singer.

II. Consider each of the following arguments:

1. Either McCain will win Ohio or Obama will.
McCain won't win Ohio.
So, Obama will.
2. You will get either rice or beans.
You don't get the rice.
So, you'll have the beans.
3. The square root of two is either rational or irrational.
It's not rational.
So, it's irrational.

III. Translate the following to propositional logic. Use A: You join me; B: I go to the movies.

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| 1. If you join me, then I go to the movies. | 1. If A then B |
| 2. You join me if I go to the movies. | 2. If B then A |
| 3. You join me only if (only when) I go to the movies. | 3. A only if (only when) B |
| 4. Your joining me is a necessary condition for my going. | 4. A is necessary for B |
| 5. Your joining me is a sufficient condition for my going. | 5. A is sufficient for B |
| 6. A necessary condition of your joining me is my going. | 6. B is necessary for A |
| 7. A sufficient condition for your joining me is my going. | 7. B is sufficient for A |
| 8. Your joining me entails (implies) that I go to the movies. | 8. A entails (implies) B |
| 9. You join me given (provided, on the condition) that I go. | 9. A given B |

IV. **Exercises:** Use obvious letters to translate the following into propositional logic.

1. Alvin doesn't like sports.
2. Bert and Ernie are muppets.
3. Claudia wants to surf or snorkel.
4. Dogs bite just in case they are startled.
5. Everyone loves logic, or not.
6. If Flora wants candy, Geronimo will get her some.
7. Harold is generous unless his wife is listening.
8. Toyota opens a new plant only if Honda initiates an ad campaign.